



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/759,691	01/15/2004	Sundaresan Jayaraman	820701-1180	8454

24504 7590 06/13/2006

THOMAS, KAYDEN, HORSTEMEYER & RISLEY, LLP  
100 GALLERIA PARKWAY, NW  
STE 1750  
ATLANTA, GA 30339-5948

EXAMINER
----------

EDMONDSON, LYNNE RENEE

ART UNIT	PAPER NUMBER
----------	--------------

1725

DATE MAILED: 06/13/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/759,691

Applicant(s)

JAYARAMAN ET AL.

Examiner

Lynne Edmondson

Art Unit

1725

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 3/28/06.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,2,4-22 and 25-34 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) 1,2 and 4-16 is/are allowed.
- 6) ☒ Claim(s) 17-22 and 25-34 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Allowable Subject Matter***

1. The indicated allowability of claim 21 is withdrawn in view of the newly discovered reference(s) to a fiber joining apparatus comprising a rail. Rejections based on the newly cited reference(s) follow.

### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 17, 20, 22, 25-29, 31, 33 and 34 are rejected under 35 U.S.C. 102(b) as being anticipated by Sutton (USPN 2049575).

Sutton teaches an apparatus for forming a junction between conductors incorporated into a fabric, comprising bringing the conductors into contact and bonding. The fabric is placed on a movable table. Wires are incorporated during formation of the woven fabric or attached in a later process. The conductive fibers are arranged in patterns. A conductive paste is deposited at the junction point of the two conductors (figure 3 and col 2 lines 11-51 and col 4 lines 6-27). The apparatus comprises

mechanical or chemical means for removing insulation (torch col 4 lines 6-27), which is also capable of joining the fibers.

4. Claims 17-20, 22 and 25-34 are rejected under 35 U.S.C. 102(b) as being anticipated by Jayaraman et al. (USPN 6381482, IDS).

Jayaraman teaches an apparatus for forming a junction between conductors incorporated into a fabric, comprising bringing the conductors into contact and bonding. Wires are incorporated during formation of the woven fabric or attached in a later process by chemical bonding (glue, col 2 line 53-col 3 line 25). The conductors are conductive fibers (col 8 lines 24-53). The conductive fibers are arranged in patterns (figures 7, 8 and 16). A conductive paste is deposited at the junction point of the two conductors (col 12 lines 31-47). The apparatus comprises mechanical, chemical, laser or ultrasonic means for removing insulation (col 11 line 61 – col 12 line 29). As the device comprises an ultrasonic welder, the device comprises means for exciting the conductors and breaking bonds.

5. Claims 17-20, 22, 25, 26, 29, 31 and 34 are rejected under 35 U.S.C. 102(b) as being anticipated by Post et al. (USPN 6493933 B1, IDS).

Post teaches an apparatus for forming a junction between conductors incorporated into a fabric, comprising bringing the conductors into contact and bonding. Wires are incorporated during formation of the woven fabric or attached in a later process (col 3 lines 18-25, col 3 line 43 – col 4 line 19 and col 5 line 56 – col 6 line 15).

The conductors are conductive fibers. The conductive fibers are arranged in patterns (figures 1 and 3). Insulation is removed prior to bonding (col 7 lines 3-8).

6. Claims 17-20, 22 and 25-34 are rejected under 35 U.S.C. 102(e) as being anticipated by Jung et al. (US 2004/0259391 A1).

Jung teaches an automated apparatus (paragraph 42) for forming a junction between conductors incorporated into a fabric, comprising bringing the conductors into contact and bonding. The joining device (20) moves. Wires are incorporated during formation of the woven fabric or attached in a later process. The conductive fibers are arranged in patterns. A conductive paste is deposited at the junction point of the two conductors (paragraphs 13-15 and 31-36). The apparatus comprises laser means for removing insulation (paragraph 56), which is also capable of joining the fibers.

7. Claims 17 and 31-34 are rejected under 35 U.S.C. 102(e) as being anticipated by Jayaramen et al. (USPN 6687523 B1).

Jayaramen teaches an automated apparatus and method for forming a junction between conductors incorporated into a fabric, comprising bringing the conductors into contact and bonding. The joining device moves. Wires are incorporated during formation of the woven fabric or attached in a later process. The conductive fibers are arranged in patterns. The apparatus comprises ultrasonic or laser means for removing insulation (col 12 lines 23-64), which is also capable of joining the fibers.

The applied reference has a common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

***Claim Rejections - 35 USC § 103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jayaraman et al. (USPN 6381482, IDS) in view of Morey (USPN 3349359).

Jayaraman teaches an apparatus and method of forming a junction between conductors incorporated into a fabric, comprising the steps of providing a fabric with at least two conductors incorporated therein, bringing the conductors into contact and bonding. Wires are incorporated during formation of the woven fabric or attached in a later process by chemical bonding (glue, col 2 line 53-col 3 line 25). The conductors are conductive fibers (col 8 lines 24-53). The conductive fibers are arranged in patterns (figures 7, 8 and 16). A conductive paste is deposited at the junction point of the two

Art Unit: 1725

conductors (col 12 lines 31-47). The apparatus comprises mechanical, chemical, laser or ultrasonic means for removing insulation (col 11 line 61 – col 12 line 29). As the device comprises an ultrasonic welder, the device comprises means for exciting the conductors and breaking bonds. However there is no disclosure of a fiber joining apparatus comprising a rail.

Morey teaches bonding wires and cloth with a conveyor on a track for positioning the fabric (figures 4 and 10, col 4 lines 32-62 and col 5 lines 70-75).

It would have been obvious to one of ordinary skill in the art at the time of the invention to employ a conveyor to facilitate proper positioning of the fabric. A rail would be an obvious variation of a conveyor on a track.

10. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jung et al. (US 2004/0259391 A1) in view of Morey (USPN 3349359).

Jung teaches an automated apparatus (paragraph 42) for forming a junction between conductors incorporated into a fabric, comprising bringing the conductors into contact and bonding. The joining device (20) moves. Wires are incorporated during formation of the woven fabric or attached in a later process. The conductive fibers are arranged in patterns. A conductive paste is deposited at the junction point of the two conductors (paragraphs 13-15 and 31-36). The apparatus comprises laser means for removing insulation (paragraph 56), which is also capable of joining the fibers. However there is no disclosure of a fiber joining apparatus comprising a rail.

Morey teaches bonding wires and cloth with a conveyor on a track for positioning the fabric (figures 4 and 10, col 4 lines 32-62 and col 5 lines 70-75).

It would have been obvious to one of ordinary skill in the art at the time of the invention to employ a conveyor to facilitate proper positioning of the fabric. A rail would be an obvious variation of a conveyor on a track.

### ***Response to Arguments***

11. Regarding applicant's argument that neither Jayarman, Post nor teach an apparatus which brings fibers or sections into contact and forming a bonding between them or a component designed for movement across the fabric to the junction point, particularly movement in a two-dimensional x-y direction, see previously cited rejections.

12. In Jayarman see column 3 lines 4-20 that teaches sewing or gluing, which requires movement. Column 11 line 11 to column 12 line 46 teaches an automated process using movable tools for removing insulating and applying paste.

Therefore the 102 rejection of claims 17-20, 22 and 25-31 as anticipated by Jayarman stands and includes new claims 32-34.

13. In Post see column 3 lines 18-24 that teaches sewing or stitching, which requires movement. Column 5 line 56 – col 6 line 33 teaches thermocompression bonding wherein a bonding tool is conventionally moved in multiple directions to form bonds at multiple locations and stitching.



Therefore the 102 rejection of claims 17-20, 22, 25, 26, 29 and 31 as anticipated by Post stands and now includes claim 34.

***Allowable Subject Matter***

14. Claims 1, 2 and 4-16 are allowed.

***Conclusion***

15. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Jung et al. (US 2004/0244193 A1, apparatus), Jayaraman et al. (USPN 6474367 B1, apparatus), Lawton et al. (US 2005/0025967 A1, apparatus), Avila (USPN 3136650, conveyor and rail, no turntable), Nicholl (USPN 3061907, solvent, mask) and Lowe (USPN 4668545).

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lynne Edmondson whose telephone number is (571) 272-1172. The examiner can normally be reached on Monday through Thursday from 6:30 a.m. to 5 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on (571) 272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Lynne Edmondson  
Primary Examiner  
Art Unit 1725

*LE*  
*6/7/06*

LRE